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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,876	04/10/2001	Shuichi Kikuchi	10417-076001	7681

7590

08/29/2002

CHRIST T. MIZUMOTO

Fish & Richardson P.C.

Suite 2800

45 Rockefeller Plaza

New York, NY 10111

EXAMINER

OWENS, DOUGLAS W

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 08/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,876

Applicant(s)

KIKUCHI ET AL. 

Examiner

Douglas W Owens

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-20 is/are rejected.
- 7) ☒ Claim(s) 5-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the invention of group II, claims 5-20 in Paper No. 4 is acknowledged.

Drawings

2. Figures 13-16 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. OK

Claim Objections

3. Claims 5-20 are objected to because of the following informalities:
 - in line 4 of claim 5, "one" should be replaced with "a first"; ✓
 - in line in line 11 of claim 5, "implanted" should be replaced with "implant"; ✓
 - in line 4 of claim 8, "a" should be inserted between "layer" and "having"; ✓
 - in line 3 of claims 9 and 10, "ion" should be replaced with "ions";
 - in line 3 of claims 9 and 10, "is" should be replaced with "are";
 - in line 3 of claims 9 and 10, "ion-implanted" should be replaced with "implanted";
 - in line 4 of claims 9 and 10, "at" should be replaced with "in"; ✓
 - in line 3 of claim 11, "at" should be replaced with "in";
 - in line 6 of claim 11, "a" should be deleted;
 - in line 7 of claim 11, "at" should be replaced with "in";

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- in line 3 of claim 12, "at" should be replaced with "in";
- in line 6 of claim 12, "a" should be deleted;
- in line 7 of claim 12, "at" should be replaced with "in";
- in line 3 of claims 13 and 14, "at" should be replaced with "in";
- in line 8 of claims 13 and 14, "at" should be replaced with "in";
- in line 4 of claims 15, 16, 17 and 18, "at" should be replaced with "in";
- in line 9 of claims 15, 16, 17 and 18, "at" should be replaced with "in"; and
- in line 7 of claims 19 and 20, "implanted" should be replaced with "implant".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. A few examples are given below.

The claims are replete with the terms, "reverse conductive type impurity", "first concentration reverse conductive type", "reverse conductive type source" and similar

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terms. "Concentration reverse conductive type", "reverse conductive type" and similar terms are not art recognized language.

Claim 5 recites the limitation, "...so as to range to the first..." in line 9. The scope of the claim is vague because it is not known what is meant by the phrase.

Claim 5 recites the limitation, "...except said first gate insulation film..." in line 16. The scope of the claim is vague because the meaning of this phrase cannot be understood.

Claim 6 recites the limitation, "...so that the impurity ion-implanted is taken in the first gate insulation..." in lines 6 and 7. The scope of the claim is vague because the language is not clear.

Claim 8 recites the limitation, "...so that high impurity concentration becomes low at a region near..." in lines 9 and 10. The scope of the claim is vague because it cannot be determined if the intention is to claim a graded impurity concentration or if some of the impurities are somehow removed.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by US patent No. 5,578,514 to Kwon et al.

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Regarding claim 5, Kwon et al. teaches a method of making a semiconductor device comprising the steps of:

implanting an impurity of the second conductivity type (23) in a first conductivity type substrate (12);

forming a first gate insulation layer (26) by field oxidation, using a thermal treatment and diffusing the impurity of second conductivity type to form a first drain region (24);

forming a gate electrode (32) wherein the gate electrode spans the first gate insulation layer and a second gate insulation layer (30); and

forming a second conductivity type source region (34) adjacent to an end of the gate electrode and forming a second drain region (36) of the second conductivity type.

Regarding claim 6, Kwon et al. does not explicitly teach that some of the impurities from the first implant are consumed when the first gate oxide is formed. In the method taught by Kwon et al. a portion of the doped silicon is consumed during the thermal treatment to form the first gate oxide. Therefore, the oxide layer would have inherently absorbed some of the impurities.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for

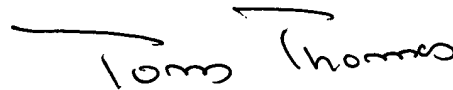
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the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink that reads "Tom Thomas". The signature is written in a cursive style with a horizontal line above the first name.

DWO
August 24, 2002

TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800